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Assessment of Occupational Health and Safety Practices in Enugu Electricity Distribution Company

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Abstract

This study focused on the Enugu Electricity Distribution Company (EEDC) and aimed to examine existing occupational health and safety (OHS) practices, assess their adequacy in accident prevention, and evaluate the effectiveness of safety training programs. A descriptive survey research design was adopted to provide quantitative evidence. The population of the study comprised 1,819 EEDC staff across seven districts in Enugu, Ebonyi, and Anambra States. A sample size of 328 respondents was determined using Taro Yamane's formula, with proportional allocation applied through a multi-stage sampling technique, followed by purposive selection of safety-related experts. Data on accident records from 2020 to the third quarter of 2025 were obtained from EEDC, while primary data were collected through a structured questionnaire. The findings revealed that occupational health and safety practices were well established, with an overall mean score of 4.05 on a 5-point scale and only one recorded fatal accident over a five-year period. The adequacy of these practices in accident prevention was further confirmed with an overall mean score of 4.10. In addition, safety training programs were found to be effective, recording an overall mean score of 4.17. The study concluded that occupational health and safety practices at EEDC are adequate and strongly supported by effective safety training programs. However, the study emphasized that sustaining these achievements requires continuous investment in employee training, emergency preparedness, and systematic equipment monitoring to ensure long-term organizational safety.

Keywords: *Occupational Health and Safety; Accident Prevention; Safety Training Programs; Electricity Distribution Company; Workplace Safety; Utility Sector; Nigeria.*

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Introduction

Occupational health and safety (OHS) has become a central concern for organizations across the world. Workplaces expose employees to physical, chemical, ergonomic, and psychosocial risks that can lead to accidents, injuries, or long-term illnesses. The International Labour Organization (ILO) estimates that millions of workers suffer from work-related accidents and diseases each year, with significant consequences for productivity, social protection, and economic growth (International Labour Organization, 2021). These challenges are particularly evident in sectors where employees face hazardous environments, including energy generation, transmission, and distribution.
The energy sector is considered one of the most high-risk industries in terms of workplace safety. Workers in electricity distribution companies frequently encounter hazards such as electrical shocks, fire outbreaks, equipment failures, and falls from heights. Studies show that inadequate adherence to safety protocols often results in high accident rates in the power sector, particularly in low- and middle-income countries where regulatory enforcement is sometimes weak (Ajayi, Oladapo & Babalola, 2023). Beyond the human cost, poor OHS standards increase operational disruptions, financial losses, and reputational damage for companies. Thus, strengthening workplace safety in this sector is not only a social and moral obligation but also a business necessity.

In Africa, electricity distribution companies have long faced challenges in balancing service delivery with worker safety. Infrastructural deficits, insufficient training, and limited resources often constrain the effective implementation of OHS standards. Empirical evidence suggests that while awareness of OHS practices is growing, significant gaps remain in their enforcement and monitoring (Umeokafor & Isaac, 2021). Weak institutional frameworks and fragmented regulatory oversight further compound these challenges, resulting in a disconnect between policy intentions and actual workplace practices.

Nigeria presents a particularly important context for the study of OHS in electricity distribution. The country's energy sector is marked by frequent system failures, unstable infrastructure, and a high incidence of technical losses. Electricity distribution companies, known as DisCos, are at the forefront of delivering power to millions of households and industries. Workers in these organizations are exposed daily to live electrical lines, unsafe tools, and unpredictable operational environments. Reports indicate that occupational hazards in Nigerian power utilities remain widespread, with accidents ranging from electrocution to falls during maintenance operations (Okolie, Adepoju & Umeokafor, 2021). These accidents not only affect workers and their families but also disrupt electricity supply, with consequences for the wider economy.

The Enugu Electricity Distribution Company (EEDC) is a critical case in Nigeria's energy sector. As one of the eleven DisCos established after the privatization of Nigeria's power sector in 2013, EEDC is responsible for electricity distribution across the South-East region. The company's operations cover both urban and rural areas, many of which face infrastructural deficiencies and difficult terrain. These conditions create a unique mix of occupational risks for employees. The pressure to deliver reliable power in challenging contexts places further strain on safety compliance and monitoring mechanisms. Despite efforts to improve infrastructure and staff training, reports of accidents and near-miss incidents continue to surface. As noted by Eze, Nnaji and Uzocchukwu (2022), these incidents raise concerns about the adequacy of existing OHS practices.

Evidence suggests that OHS practices in Nigerian electricity distribution companies remain inconsistent and often inadequate. A critical knowledge gap exists in understanding how occupational safety frameworks translate into actual workplace practices in specific organizational contexts. While general studies have examined broad sectoral challenges, there is limited empirical evidence on the adequacy of safety measures and training programs within individual electricity distribution companies such as the Enugu Electricity Distribution Company (EEDC). This lack of focused research restricts the ability to identify strengths, weaknesses, and actionable strategies for reducing accidents.

If unaddressed, these deficiencies pose significant risks for employees, the organization, and the communities it serves. Preventable accidents not only endanger lives but also disrupt electricity distribution, with ripple effects on

households, businesses, and regional development. This study is therefore designed to identify the current occupational health and safety practices in EEDC, examine the adequacy of these practices in accident prevention, and access the effectiveness of occupational health and safety practices training programs in EEDC.

Review of Related Literature

Occupational Health and Safety (OHS)

Occupational Health and Safety (OHS) refers to the principles, systems, and practices designed to safeguard the physical, mental, and social well-being of employees in their working environments. It encompasses the anticipation, recognition, evaluation, and control of hazards that arise in or from the workplace. OHS is central to the sustainable functioning of organizations because it reduces the likelihood of accidents, enhances worker welfare, and contributes to organizational resilience. In the context of electricity distribution companies, where workers are exposed to electrical hazards, heights, and physically demanding conditions, OHS provides the framework for minimizing risks and promoting a safety culture.

The modern conceptualization of OHS has been shaped by both international standards and national regulatory frameworks. The International Labour Organization has consistently highlighted OHS as a fundamental human right, linking safe work environments to sustainable development and economic progress (International Labour Organization, 2021). Contemporary scholarship reinforces this perspective, with studies underscoring the relationship between strong OHS practices and improved organizational performance (Ajayi, Oladapo & Babalola, 2023). However, while the global discourse emphasizes harmonized standards, actual practices vary significantly across industries and regions, influenced by regulatory enforcement, organizational culture, and resource availability. This variation makes it necessary to examine OHS not only as a global concept but also as a contextualized practice shaped by local conditions.

Scholars have stressed that OHS is not limited to the prevention of physical injuries but extends to psychological and social dimensions of worker well-being. Issues such as stress management, fatigue, and organizational climate are increasingly recognized as integral components of workplace safety (Umeokafor & Isaac, 2021). This expanded scope reflects a broader understanding of health that goes beyond the absence of injury. Yet, in many developing contexts, OHS remains narrowly defined, focusing primarily on compliance with physical safety regulations rather than holistic well-being. This gap highlights the uneven implementation of modern OHS frameworks, particularly in sectors characterized by resource constraints and weak institutional support.

Recent literature also emphasizes the role of training and capacity development in strengthening OHS. Safety knowledge and skills are crucial for ensuring that workers can recognize hazards, respond appropriately, and contribute to a culture of prevention (Okolie, Adepoju & Umeokafor, 2021). Training is particularly important in industries like electricity distribution, where risks are highly technical and often invisible. Inadequate training leaves workers vulnerable and undermines the effectiveness of even well-designed safety policies. Studies have documented that without sustained investment in safety education, OHS programs remain superficial and fail to deliver lasting improvements (Aniekwe & Okonkwo, 2020). The implication is that OHS must be understood as both a structural and behavioral issue, requiring organizational commitment alongside individual competence.

The concept of OHS is also closely linked to the idea of organizational safety culture. Safety culture reflects the collective values, attitudes, and practices that shape how workers and managers perceive and act on safety issues. A strong safety culture ensures that policies are not only written but practiced, while a weak culture creates gaps between formal standards and actual behavior (Cooper, 2000). In many electricity distribution companies, safety culture is undermined by competing pressures such as cost reduction, service delivery demands, and inadequate enforcement. This tension reveals the importance of considering OHS not only in terms of technical safeguards but also in terms of organizational dynamics that influence compliance and accountability.

In the Nigerian context, OHS acquires particular significance due to infrastructural limitations, regulatory challenges, and socio-economic pressures. Electricity distribution workers often operate in environments where outdated equipment, poor maintenance, and limited protective gear increase risks (Eze, Nnaji & Uzochukwu, 2022). At the same time, national regulatory agencies face difficulties in enforcing standards uniformly, leaving implementation largely to the discretion of individual companies. For stakeholders such as policymakers, effective OHS frameworks represent an opportunity to reduce the high incidence of occupational accidents and strengthen public trust in the energy sector. For practitioners, improved OHS practices enhance operational efficiency and reduce disruptions caused by accidents. Communities and electricity consumers also benefit indirectly from safer work environments, as fewer accidents translate into more reliable service delivery.

Accident Prevention

Accident prevention refers to the systematic approaches, strategies, and interventions aimed at reducing the occurrence and severity of workplace incidents. It involves proactive identification of hazards, assessment of risks, and implementation of measures to eliminate or minimize exposure to unsafe conditions. In occupational settings, accident prevention is a fundamental component of health and safety management because it directly protects workers' lives and supports organizational continuity.

The literature highlights several dimensions of accident prevention, including engineering controls, administrative policies, personal protective equipment, and behavioral interventions. Engineering controls refer to design modifications or technological innovations that reduce exposure to hazards, such as insulated tools and automated circuit breakers. Administrative controls include safety policies, work schedules, and supervisory practices that minimize risk. Personal protective equipment serves as the last line of defense when hazards cannot be fully eliminated. Finally, behavioral interventions focus on shaping worker attitudes and practices to reinforce safe behavior (Hallowell, Molenaar & Jeong, 2021). Together, these strategies reflect the hierarchy of controls, a widely accepted framework in occupational safety. However, the extent to which these measures are implemented effectively often varies across organizations and industries.

Accident prevention is also closely tied to regulatory and policy frameworks. Governments and regulatory agencies play a central role by establishing safety standards, monitoring compliance, and enforcing penalties for violations. In developing countries, however, enforcement is often inconsistent due to limited resources, weak institutions, and socio-political challenges. This creates gaps between formal regulatory requirements and actual workplace practices (Umeokafor & Isaac, 2021). In the Nigerian context, the regulatory framework for occupational safety exists but is unevenly enforced, leaving individual companies with wide discretion in interpreting and implementing accident prevention measures. This variability underscores the importance of contextual studies that examine how organizations operationalize accident prevention in practice.

Training and awareness programs form another critical pillar of accident prevention. Workers must not only be aware of hazards but also possess the skills to respond appropriately when risks arise. Training equips workers to recognize unsafe conditions, follow established procedures, and use protective equipment correctly. Studies have found that organizations with regular and comprehensive training programs experience fewer accidents than those that treat training as a one-time or superficial exercise (Okolie, Adepoju & Umeokafor, 2021). Effective training is also iterative, adapting to evolving hazards and incorporating feedback from frontline workers who experience risks directly. The failure to institutionalize robust training undermines the sustainability of preventive efforts and leaves workers vulnerable to avoidable harm.

In high-risk industries such as electricity distribution, accident prevention carries additional importance due to the potential consequences that extend beyond the individual worker. Electrical accidents can disrupt power supply, damage infrastructure, and impose economic costs on entire communities (Ajayi, Oladapo & Babalola 2023). This broader impact means that prevention is not only a workplace responsibility but also a societal necessity. Policymakers, regulators, and communities all have vested interests in ensuring that organizations prioritize

accident prevention. By reducing accidents, organizations can safeguard workers, maintain service reliability, and foster public trust in essential services.

Despite the global consensus on the importance of accident prevention, gaps remain in both scholarship and practice. While extensive research has examined accident prevention in industrialized nations, fewer studies focus on the realities of developing economies where infrastructure deficits, weak enforcement, and limited resources constrain safety measures. Moreover, existing studies often focus on technical aspects while giving less attention to the social, cultural, and organizational dynamics that shape how prevention is practiced on the ground. Addressing these gaps is crucial to developing a nuanced understanding of accident prevention in contexts such as Nigeria's electricity distribution companies, where risks are significant and resources constrained.

Domino Theory of Accident Causation

The Domino Theory of Accident Causation was first proposed by Herbert William Heinrich in 1931. Heinrich developed the theory as part of his foundational work on industrial safety, drawing from extensive case studies of workplace accidents in the early twentieth century. The theory remains one of the seminal contributions to occupational safety, providing a structured way to understand how accidents occur and how they can be prevented.

The theory conceptualizes accidents as the result of a sequential chain of events. Heinrich illustrated this process using the metaphor of falling dominos. According to the model, accidents occur when five factors align: social environment and ancestry, the fault of the individual, unsafe acts or conditions, accidents, and injuries. When one domino falls, it sets off a chain reaction that leads to harm. Importantly, Heinrich argued that removing one domino, particularly unsafe acts or conditions, interrupts the sequence and prevents the accident (Heinrich, 1931). This simple but powerful framework highlighted the preventable nature of workplace injuries.

The strength of the Domino Theory lies in its ability to provide a clear cause-and-effect model that can be applied across diverse industries. Modern scholars note that while the original framework has been refined, the central logic continues to influence safety management systems (Khosravi *et al.,* 2021). The theory does not merely identify that accidents occur; it explains how specific factors interact and escalate into harmful outcomes. By doing so, it directs attention to the points of intervention where safety policies, training, and organizational practices can be applied most effectively.

In the context of electricity distribution companies, the Domino Theory is particularly relevant. Workers in this sector face risks such as electrical shocks, falls from heights, and equipment-related injuries. These hazards often arise not only from technical failures but also from unsafe behaviors and organizational lapses. The theory helps to frame these risks as part of a chain of causation that can be disrupted through targeted preventive measures. For example, by addressing unsafe acts through training or by eliminating unsafe conditions through proper equipment maintenance, organizations can prevent accidents before they escalate into serious injuries.

The theory also aligns with the study's focus on occupational health and safety practices, adequacy in accident prevention, and the effectiveness of training programs. Heinrich's emphasis on unsafe acts and conditions directly corresponds to the study's examination of current safety practices in the Enugu Electricity Distribution Company. Furthermore, the role of worker training in breaking the chain of causation connects to the objective of assessing the effectiveness of safety education initiatives. In this sense, the Domino Theory provides not only a conceptual foundation but also a practical lens for analyzing organizational safety measures.

Methodology

Research Design

This study adopts a descriptive survey design. A descriptive survey systematically collects data from a defined population to describe existing conditions, practices, or opinions without manipulating variables (Creswell & Creswell, 2017). It is particularly suitable for research that seeks to examine phenomena as they occur in natural settings which allows for the identification of prevailing trends and patterns.

Area of Study

The study was carried in Southeast Nigeria, a geopolitical zone comprising five states: Abia, Anambra, Ebonyi, Enugu, and Imo. It lies approximately between latitudes 4°45'N and 7°15'N and longitudes 6°50'E and 8°30'E. The region is bounded to the north by Benue and Kogi States, to the west by Delta State, to the east by Cross River State, and to the south by Rivers and Akwa Ibom States. Its landscape is a mix of urban centers and semi-rural communities, with significant infrastructural development and dense population. This location is particularly relevant to the study because it represents the operational coverage of Enugu Electricity Distribution Company.

Sources of Data

The study relied on both primary and secondary data. The primarily data was collected from selected districts of the Enugu Electricity Distribution Company in three states in South East Nigeria. In Ebonyi State, the survey was conducted in the Abakaliki District. In Enugu State, data were gathered from Ogui, Abakpa and Nsukka Districts. In Anambra State, the study focused on the Onitsha, Awka, and Nnewi Districts. These districts were chosen to provide a representative view of EEDC operations across diverse urban and semi-urban contexts within the region. In addition, the study incorporated secondary data drawn from existing documentation and relevant literature.

Population, Sample Size and Sampling Technique

The study targeted a population of 1,819 employees of EEDC in the selected districts across three states of Enugu, Ebonyi, and Anambra states. The sample size of the study was determined using the Taro Yamane formula (equation 3.1), which is considered appropriate for finite populations.

$$n = \frac{N}{1 + N(e)^2} \qquad (3.1)$$

Where n is the sample size, N is the population size, and e is the level of precision. For this study, the total population size was 1,819 employees. A 5% margin of error (0.05) was adopted, which is commonly accepted in for balancing accuracy with feasibility. The computed sample size was therefore 328 respondents.

The study employed a multi-stage sampling technique to ensure representativeness and focus on relevant expertise. At the first stage, the sample was proportionally allocated to each of the selected districts using Bowley's proportional allocation formula (equation 3.2):

$$n_i = \frac{N_i}{N} \times n \qquad (3.2)$$

Where n_i is the sample size for each stratum, N_i is the population of the stratum, N is the total population, and n is the overall sample size. Using this formula, the sample of 328 was distributed across the districts according to their staff strength, as shown in Table 1.

Table 1. Proportional allocation of sample size by district

District	Population (N_i)	Sample Size (n_i)
Abakaliki	215	39
Ogui	324	59
Abakpa	198	36
Nsukka	176	32
Onitsha	412	74
Awka	263	47
Nnewi	231	41
Total	1819	328

Source: Researchers' computation, 2025

At the second stage, purposive sampling was adopted to ensure that respondents were selected from categories of employees with direct involvement in occupational health and safety practices. This included safety officers, engineers, technical staff, and administrative supervisors who possessed knowledge of OHS policies and procedures.

Results and Discussion

Identification of Current OHS practices in EEDC

The statistical analysis of responses on current occupational health and safety practices in EEDC provided a clear indication of the prevailing safety culture across operational districts. As presented in Table 2, the overall mean of 4.05 with a standard deviation of 1.04 suggested a generally positive perception of safety practices among staff. The clustering of mean values above 3.80 across all six items reinforced the presence of structured occupational health and safety measures within the organization.

Table 2. Statistical analysis on the current occupational health and safety practices in Enugu Electricity Distribution Company (EEDC) (n =301).

S/N	Item	SA	A	U	D	SD	Mean	Std. Dev.
1	Safety equipment such as helmets, gloves, and boots were regularly provided to staff.	124 (41.2%)	97 (32.2%)	47 (15.6%)	28 (9.3%)	5 (1.7%)	4.02	1.05
2	Safety inspections were conducted consistently in operational sites.	113 (37.5%)	94 (31.2%)	54 (17.9%)	32 (10.6%)	8 (2.7%)	3.86	1.13
3	Hazard identification and reporting procedures were implemented across districts.	127 (42.2%)	102 (33.9%)	39 (13.0%)	29 (9.6%)	4 (1.3%)	4.06	1.03
4	First aid facilities were available in all operational units.	146 (48.5%)	98 (32.6%)	36 (12.0%)	15 (5.0%)	6 (2.0%)	4.21	0.97
5	Fire safety measures such as extinguishers and alarms were maintained.	139 (46.2%)	95 (31.6%)	42 (14.0%)	18 (6.0%)	7 (2.3%)	4.13	1.02
6	Electrical work protocols included lockout and tagout procedures.	128 (42.5%)	91 (30.2%)	52 (17.3%)	22 (7.3%)	8 (2.7%)	4.03	1.06
	Overall mean/ Standard deviation						4.05	1.04

Source: Computation of accident records from EEDC (2025)

Provision of first aid facilities emerged as the strongest dimension, with a mean of 4.21 and nearly half of the respondents strongly agreeing that such facilities were available in all units. Fire safety measures and hazard

reporting procedures also received high ratings, with mean scores of 4.13 and 4.06 respectively, indicating staff confidence in the company's preparedness for emergencies. Safety equipment provision and electrical protocols were similarly rated above 4.00, further emphasizing the consistency of key preventive measures.

However, safety inspections recorded the lowest mean score of 3.86, reflecting comparatively less agreement on their consistency. The slightly higher standard deviation for this item suggested some variability in staff experiences across districts. The distribution of responses demonstrated that while a majority of staff strongly agreed or agreed across most items, smaller proportions expressed uncertainty or disagreement. These minority views are important as they reveal potential gaps in either implementation or communication of policies.

Adequacy of current HOS practices in EEDC in Accident Prevention

The analysis of accident records from 2020 to the third quarter of 2025 revealed a striking trend in staff safety outcomes within EEDC. As presented in Table 3, only one accident was documented in 2020, representing 100 percent of the total incidents for the entire six-year period. This single case involved electrocution during an illegal operation. From 2021 through to the third quarter of 2025, no staff-related accidents were reported.

Table 3: Accidents involving EEDC Staff (2020–Q3 2025) with percentage distribution

Year	No. of Accidents	Cause	Percentage of Total	Cumulative Total
2020	1	Electrocution during an illegal operation	100%	1
2021	0	-	0%	1
2022	0	-	0%	1
2023	0	-	0%	1
2024	0	-	0%	1
Q1–Q3 2025	0	-	0%	1

Source: Computation of accident records from EEDC (2025)

The inclusion of percentage distribution clarified the dominance of the 2020 incident in the dataset, while the cumulative total highlighted the absence of further occurrences in subsequent years. This pattern demonstrates a prolonged accident-free record, which may reflect increasing attention to occupational safety practices over time. The analysis of accident-free years is particularly important because it situates EEDC within broader discussions of organizational learning and safety culture. Although the dataset shows limited variation, its analytical value lies in identifying the persistence of accident-free operations after 2020. The zero-incident record for five consecutive years underscores the significance of preventive measures.

The evaluation of the adequacy of occupational health and safety practices for accident prevention in EEDC indicated strong staff perceptions of sufficiency across multiple dimensions. As shown in Table 4, the overall mean score of 4.10 with a standard deviation of 1.04 reflected broad agreement that safety practices were adequate for minimizing risks. All six items recorded mean values above 4.00, underscoring the general consistency of accident prevention systems across operational units.

Table 4. Statistical analysis on the adequacy of these practices in accident prevention within EEDC (n =301).

S/N	Item	SA	A	U	D	SD	Mean	Std. Dev.
1	Safety practices in EEDC were sufficient to minimize the risk of electrical shocks.	123 (40.9%)	104 (34.6%)	42 (13.9%)	23 (7.6%)	9 (3.0%)	4.03	1.06
2	The existing protective measures effectively reduced fire hazards.	137 (45.5%)	92 (30.6%)	44 (14.6%)	20 (6.6%)	8 (2.7%)	4.10	1.05
3	The procedures in place adequately prevented workplace falls.	146 (48.5%)	97 (32.2%)	37 (12.3%)	15 (5.0%)	6 (2.0%)	4.20	0.97
4	Safety protocols ensured protection against exposure to harmful substances.	141 (46.8%)	91 (30.2%)	42 (13.9%)	19 (6.3%)	8 (2.7%)	4.12	1.04
5	The available emergency response measures were adequate in accident situations.	128 (42.5%)	90 (29.9%)	54 (17.9%)	20 (6.6%)	9 (3.0%)	4.02	1.07
6	The frequency of safety drills was sufficient to prepare workers for emergencies.	143 (47.5%)	88 (29.2%)	42 (13.9%)	19 (6.3%)	9 (3.0%)	4.12	1.06
	Overall mean/ Standard deviation	**4.10**	1.04					

Prevention of workplace falls was the most strongly endorsed practice, with a mean of 4.20 and nearly half of respondents strongly agreeing that existing procedures reduced such risks. Safety protocols against exposure to harmful substances and the frequency of safety drills followed closely, both achieving mean scores of 4.12. These results suggested a well-established system of preventive mechanisms addressing a range of occupational hazards. The adequacy of fire hazard controls was also rated highly at 4.10, while sufficiency of measures against electrical shocks and adequacy of emergency responses both recorded mean values just above 4.00. Although positive, these slightly lower scores compared to other dimensions suggested areas where consistency in implementation could be further reinforced.

The Effectiveness of OHS Training Programs in EEDC

The analysis of occupational health and safety training programs in EEDC demonstrated a strong consensus on their effectiveness in improving workplace safety outcomes. As presented in Table 5, the overall mean score of 4.17 with a standard deviation of 1.00 indicated widespread agreement that training initiatives had a meaningful impact on employee behavior, knowledge, and preparedness. All six items recorded mean scores above 4.00, reflecting consistent confidence in the contribution of training to occupational safety.

Table 5. Statistical analysis on the effectiveness of occupational health and safety practices training programs in EEDC (n= 301).

S/N	Item	SA	A	U	D	SD	Mean	Std. Dev.
1	Training programs improved compliance with established safety protocols.	140 (46.5%)	103 (34.2%)	36 (12.0%)	15 (5.0%)	7 (2.3%)	4.18	0.98
2	Workers gained adequate knowledge of hazard identification through training.	148 (49.2%)	100 (33.2%)	34 (11.3%)	13 (4.3%)	6 (2.0%)	4.23	0.95
3	The training enhanced the ability of workers to use safety equipment properly.	134 (44.5%)	95 (31.6%)	43 (14.3%)	20 (6.6%)	9 (3.0%)	4.08	1.06
4	Training sessions improved preparedness for emergency response.	146 (48.5%)	96 (31.9%)	37 (12.3%)	16 (5.3%)	6 (2.0%)	4.20	0.98
5	The training schedule was regular enough to maintain high safety awareness.	139 (46.2%)	92 (30.6%)	42 (14.0%)	19 (6.3%)	9 (3.0%)	4.11	1.06
6	Training programs significantly reduced unsafe work behaviors.	152 (50.5%)	95 (31.6%)	34 (11.3%)	14 (4.7%)	6 (2.0%)	4.24	0.96
	Overall mean/ Standard deviation						4.17	1.00

Reduction of unsafe work behaviors emerged as the most highly rated aspect, with a mean of 4.24 and over half of the respondents strongly agreeing that training had a significant role in curbing risky practices. Acquisition of knowledge in hazard identification also scored strongly at 4.23, highlighting the importance of training in equipping workers with the capacity to recognize and mitigate risks. Preparedness for emergency response followed closely at 4.20, reflecting a strong perception of readiness among staff.

Effectiveness of training in ensuring compliance with safety protocols (4.18), adequacy of training frequency (4.11), and improved use of safety equipment (4.08) were also rated positively. Although these dimensions were slightly lower in mean value, they remained well above the neutral threshold, suggesting broad satisfaction with training outcomes while also pointing to areas where reinforcement may be beneficial.

The response distribution confirmed that a significant majority agreed or strongly agreed across all items, with only a small fraction expressing disagreement or neutrality. This consistency underscored the integral role of training programs in sustaining the company's occupational safety framework. Collectively, the findings highlighted training as a vital mechanism for embedding a culture of safety, reinforcing compliance, and reducing the likelihood of accidents in EEDC operations.

Conclusion

The study investigated occupational health and safety practices in Enugu Electricity Distribution Company, with specific attention to their current state, adequacy in accident prevention, and the effectiveness of training programs. Findings demonstrated that safety practices had become firmly embedded within operational structures. While accident incidence was extremely low, the practices in place reflected a deliberate commitment to institutionalized safety culture.

The evaluation of adequacy revealed that existing measures were largely sufficient to minimize workplace hazards. Systems designed to mitigate electrical shocks, fires, falls, and hazardous exposure were consistently applied. However, the findings also pointed to uneven levels of preparedness in some emergency responses and safety drills, indicating that improvements remain necessary to achieve optimal protection across all units. The effectiveness of training programs emerged as a key driver of safety compliance and hazard recognition. Training was shown to enhance knowledge, improve emergency readiness, and reduce unsafe work behaviors. Its structured implementation positioned it as an indispensable component of the safety framework.

The study concluded that EEDC has made significant progress in occupational health and safety. Nevertheless, the adequacy of preventive systems and the impact of training programs underscored the need for continuous improvement.

Recommendations

Based on the findings of this study, the following recommendations are proposed to enhance workplace health and safety practices in EEDC:

i. The study revealed that occupational health and safety practices are well established within EEDC. To further strengthen these practices, management should ensure that existing OHS policies, procedures, and guidelines are clearly documented, regularly communicated, and easily accessible to all employees. Safety manuals and standard operating procedures should be updated periodically to reflect current operational realities and regulatory requirements. In addition, management should encourage consistent adherence to these practices across all districts to promote uniformity in safety standards.
ii. Although the findings confirmed that existing OHS practices are adequate in preventing accidents, EEDC should adopt a proactive approach to accident prevention by strengthening hazard identification, risk assessment, and control measures. Regular safety audits, workplace inspections, and near-miss reporting systems should be institutionalized to detect potential risks before accidents occur. Management should also reinforce compliance monitoring and enforcement mechanisms to ensure that safety procedures are strictly followed, especially during high-risk field operations.
iii. Given the high effectiveness of safety training programs observed in the study, EEDC should sustain and enhance these programs through continuous capacity building. Regular refresher courses, job-specific safety training, and practical simulations should be provided to both technical and non-technical staff. Special emphasis should be placed on new employees and contractors to ensure they acquire the necessary safety competencies before deployment. Furthermore, training programs should be periodically evaluated to measure learning outcomes and improve their relevance and effectiveness.

References

Ajayi, O. O., Oladapo, A., & Babalola, M. O. (2023). Occupational safety and health in the Nigerian power sector: Challenges and prospects. *Journal of Safety Research, 86*(1), 45 – 55.

Aniekwe, O. C., & Okonkwo, C. U. (2020). Safety management practices in Nigeria's electricity distribution companies. *International Journal of Occupational Safety and Ergonomics, 26*(3), 523–533.

Cooper, M. D. (2000). Towards a model of safety culture. *Safety Science, 36*(2), 111–136.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Eze, C. U., Nnaji, M. E., & Uzochukwu, G. C. (2022). Occupational hazards in Nigerian electricity distribution companies: Evidence from the South-East. *African Journal of Management Studies, 14*(2), 112–127.

Hallowell, M. R., Molenaar, K. R., & Jeong, J. (2021). Integrating the hierarchy of controls into safety and health management systems. *Safety Science, 142*, 105401.

Heinrich, H. W. (1931). *Industrial accident prevention: A scientific approach*. McGraw-Hill.

International Labour Organization. (2021). *Safety and health at the heart of the future of work*. ILO. https://www.ilo.org/safework

Jeong, B. Y., & Kwon, O. (2022). The impact of occupational safety training on accident reduction and worker empowerment. *International Journal of Environmental Research and Public Health, 19*(9), 5623

Khosravi, Y., Asilian-Mahabadi, H., Hajizadeh, E., Hassanzadeh-Rangi, N., Bastani, H., & Behzadan, A. H. (2021). Factors influencing unsafe behaviors and accidents on construction sites: A review. *Safety Science, 142*, 105356.

Okolie, K. C., Adepoju, S. O., & Umeokafor, N. (2021). Electrical hazards and occupational risks in Nigeria's energy industry. *Safety Science, 140*, 105309.

Umeokafor, N., & Isaac, D. (2021). Occupational safety and health challenges in Africa: A critical review. *International Journal of Environmental Research and Public Health, 18*(21), 11245.